How to add AIOP camera to Hikcentral Professional

March. 2023

Content

1. Description

Hard Hat detection algorithm, is the use of advanced deep learning technology, based on high-performance hardware platform, detects of the head shoulder in the video, determine whether there is a hard hat, then output the alarm of the head that whether to wear a hard hat.

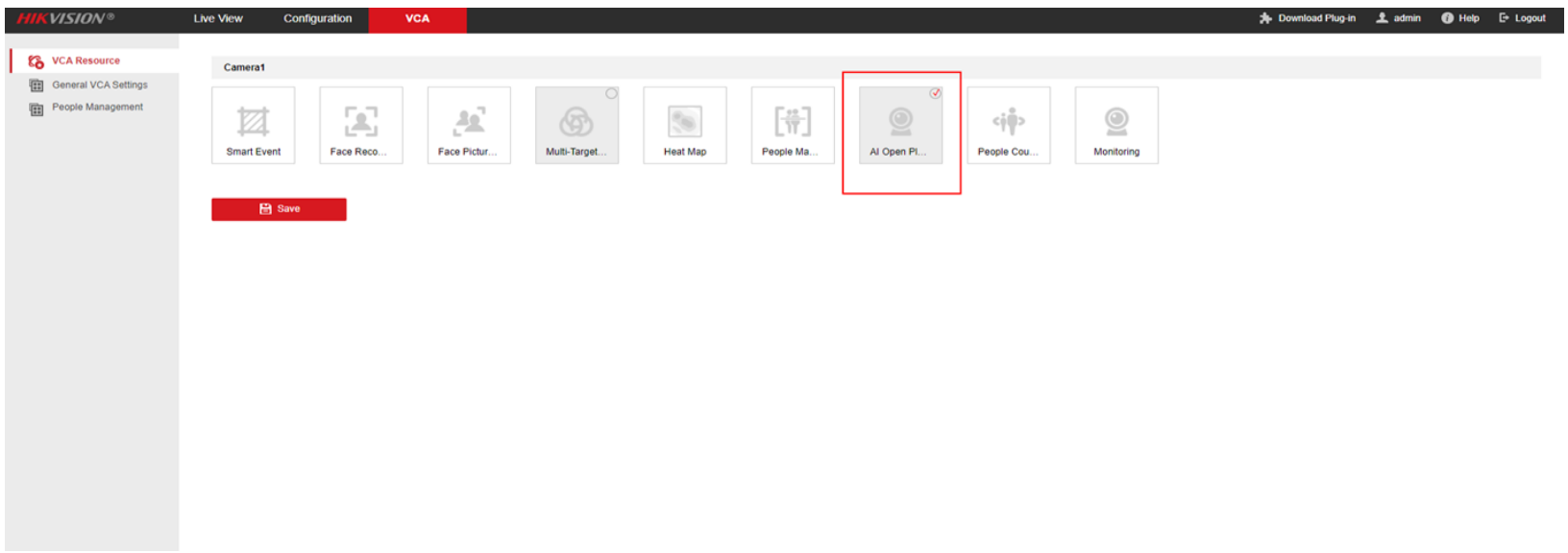
Hard hat color support: red, white, blue, yellow, orange five colors.

Note: Orange and yellow is closer, vulnerable to light, color difference, stains and other factors, orange is recommended only as a functional item.

2. Configure the parameter at the web page of camera

2.1 Switch VCA Resource

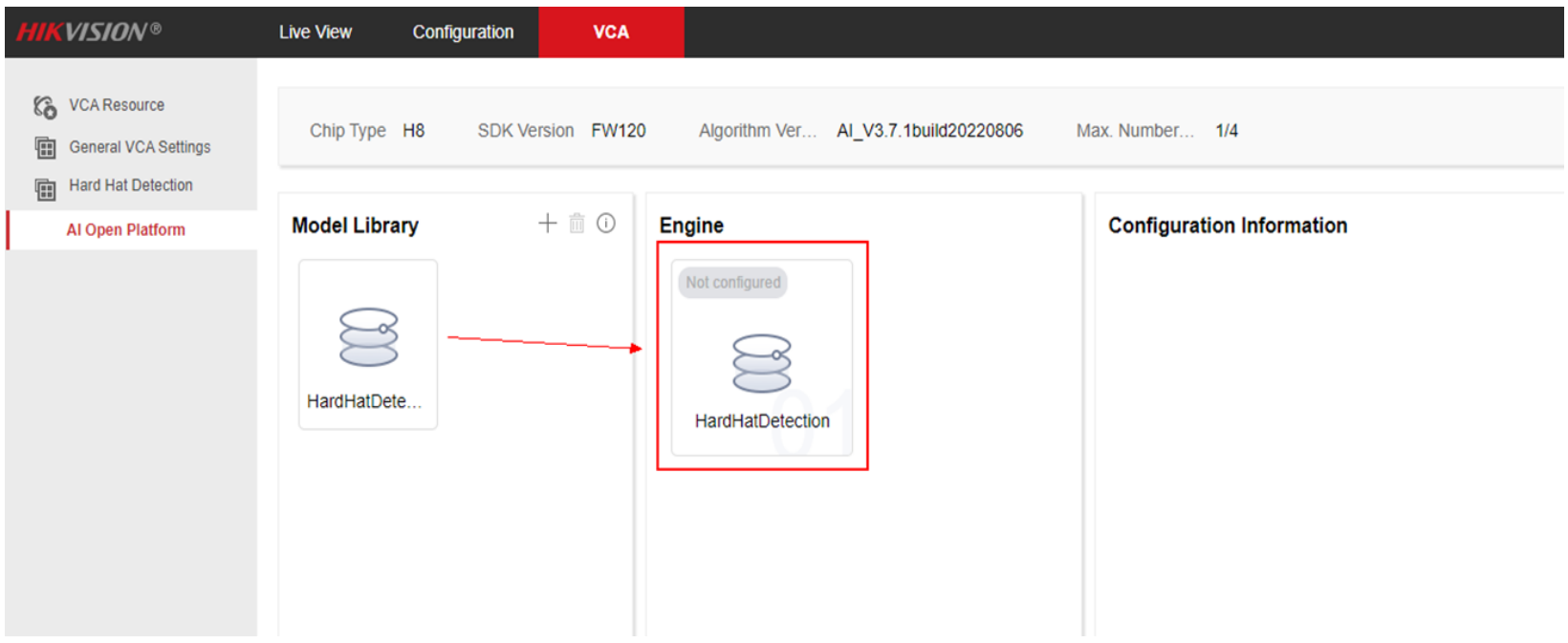
Enter [VCA]-[VCA Resource], switch VAC Resource to AI Open Platform, click Save.



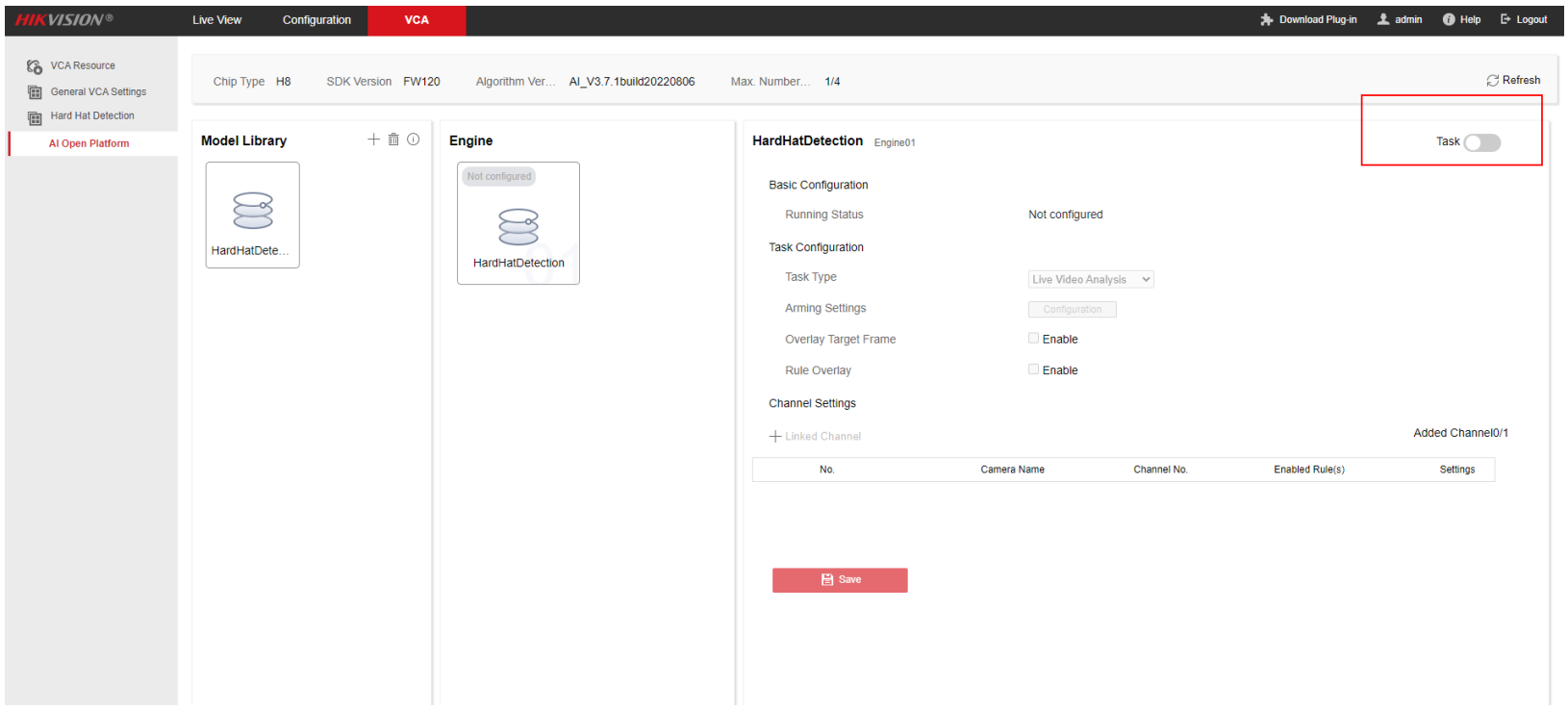
Note: For H8 platform iDS 7 camera, Hard Hat detection algorithm is build-in AIOP mode, so we need to change VCA resource to AIOP mode.

2.2 Hard Hat Detection algorithm Configuration

Step 1: Enter **VCA-> Hard Open Platform-> AI Open Platform**. Drag Hard Hat Detection model in Model Library to Engine to bind them.



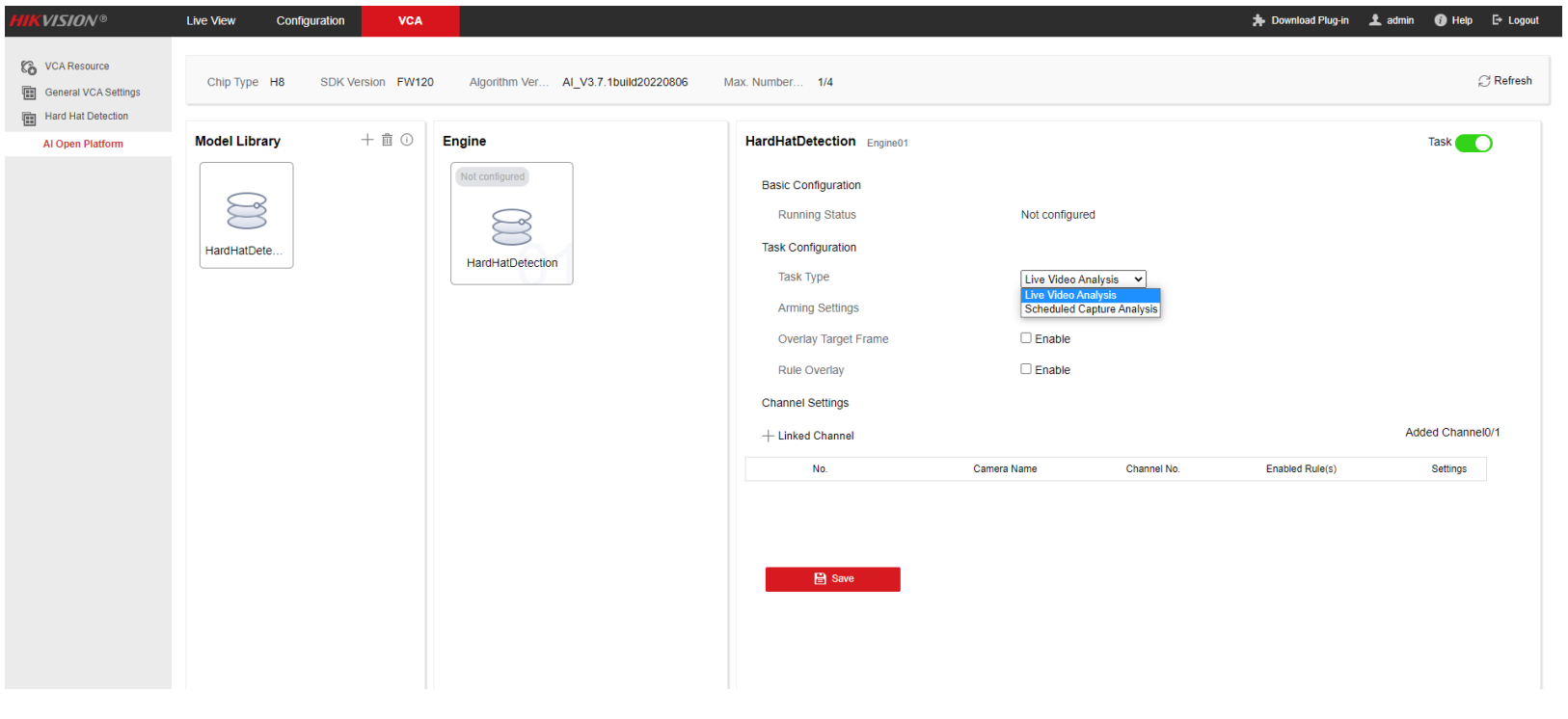
Step 2: Click Hard Hat Detection model in Engine and click Task to enable the function.



Step 3: Select Task Type. There are two type of task that you can chose:

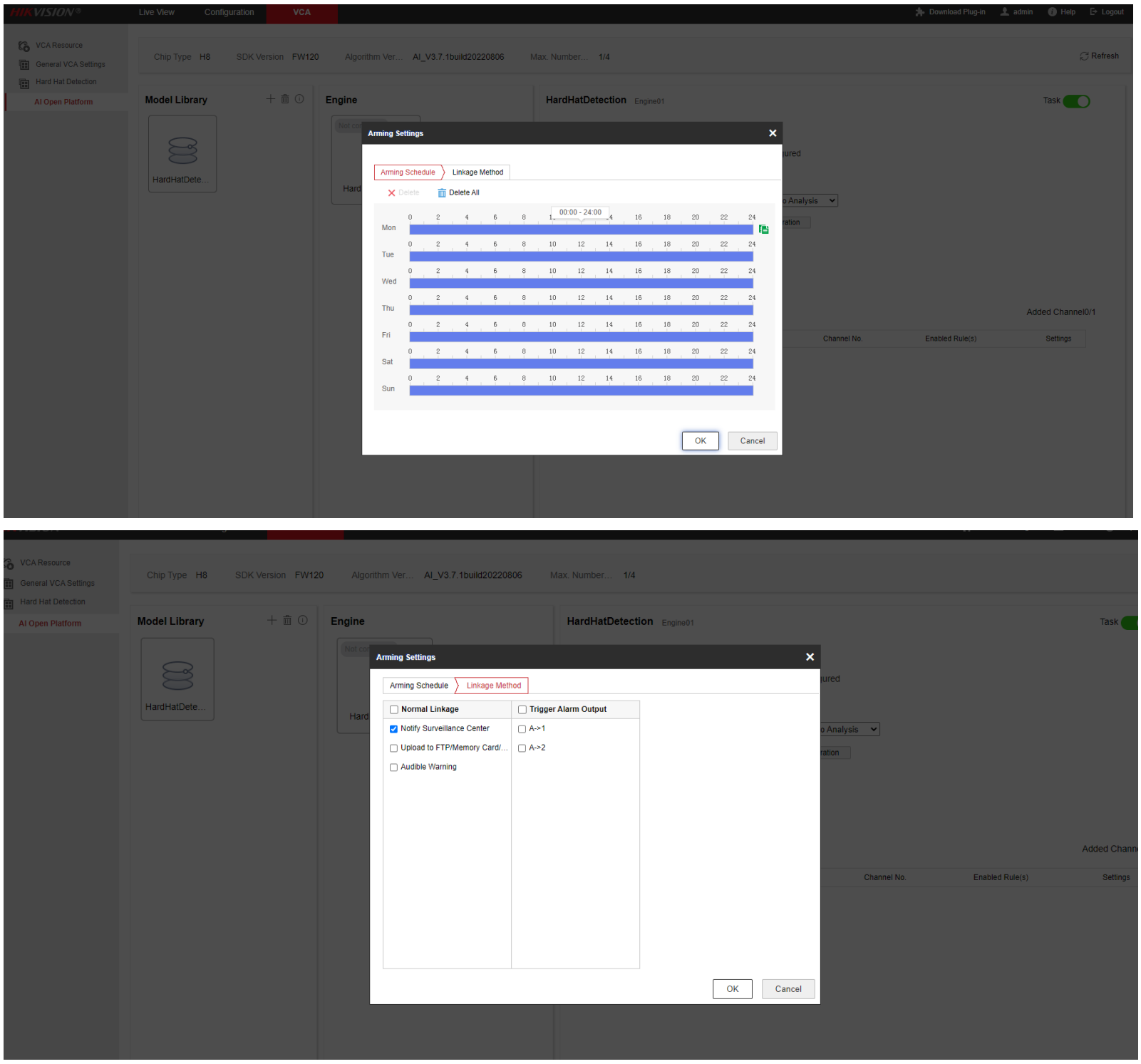
1) **Live Video Analysis:** The device analyzes the live video to realize target detection, tracking and result uploading.

2) **Scheduled Capture Analysis:** The device captures based on the set auto-switch interval to analyze the captured picture and upload results.

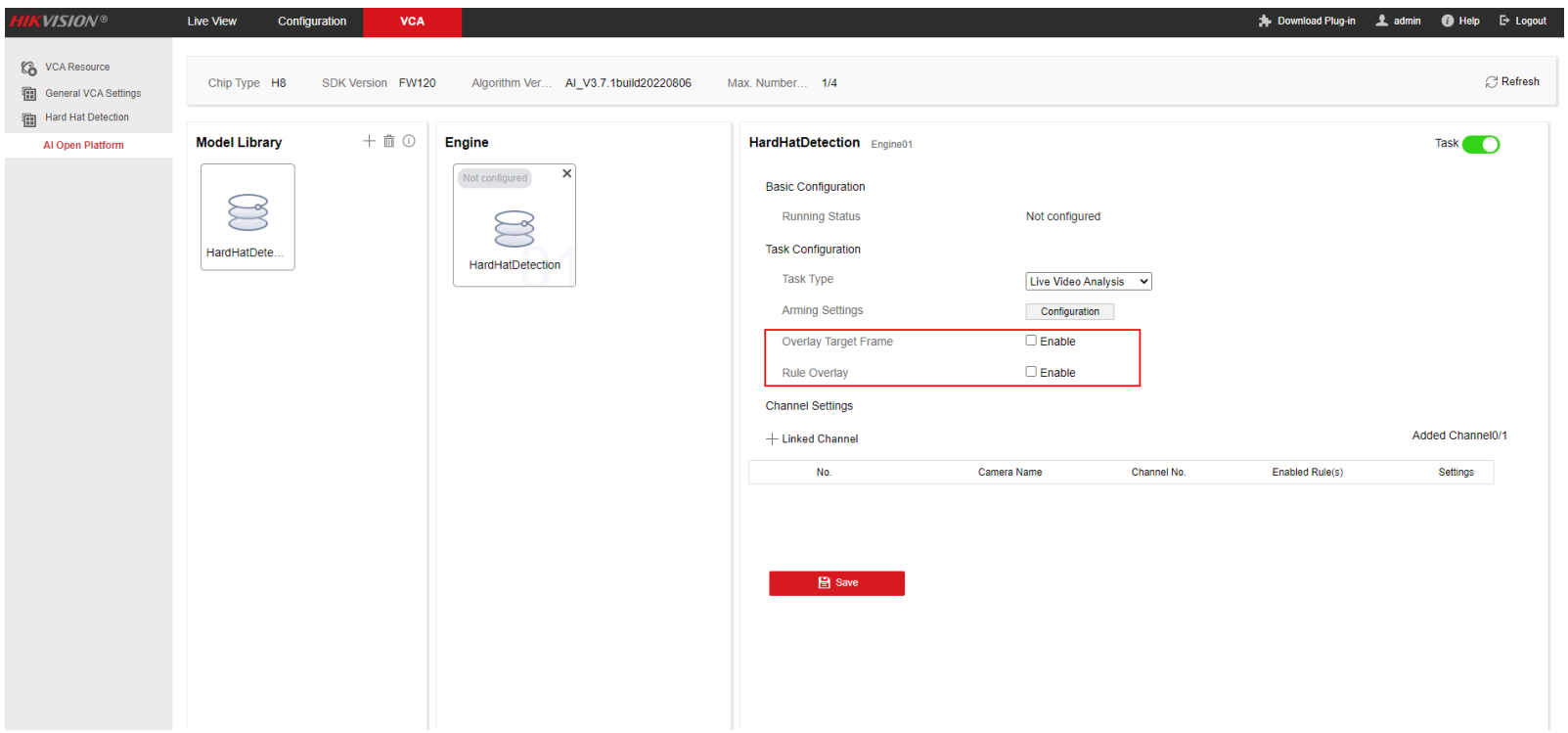


Step 4: Set Arming Schedule and Linkage Method.

The arming schedule can be set according to the actual needs of the site, default is 24/7 arming. Next, check Notify Center, audible warning and IO alarm output A->1 or A->2 in linkage mode, accord to actual needs and wiring.



Step 5: Enable **Overlay Target Frame** and **Rule Overlay** according to your needs.

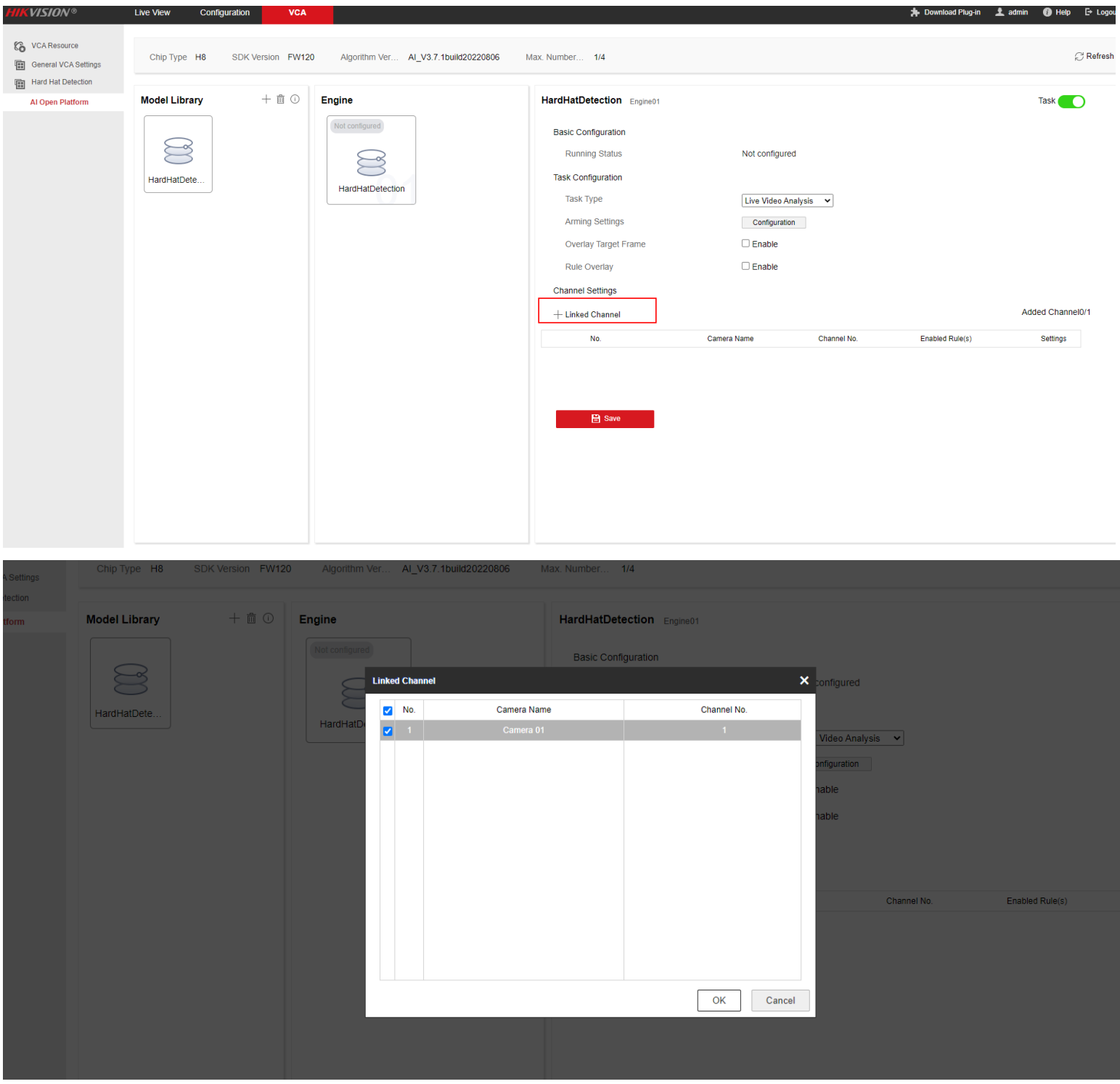


1) **Overlay Target Frame**: Captured pictures will overlay the head shoulder frame of target. As picture shown below.

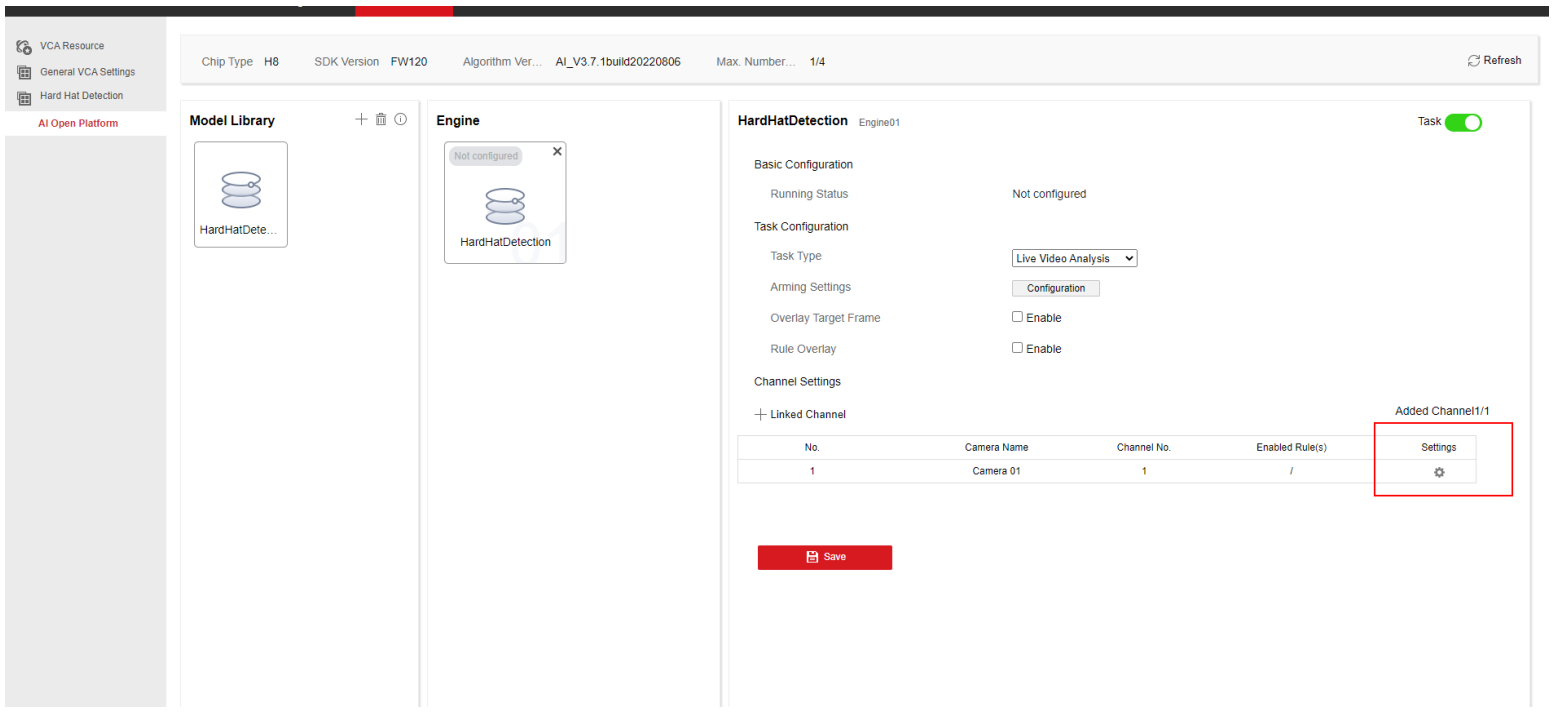
2) **Rule Overlay**: Captured pictures will overlay rule information. As picture shown below.

Step 6: Link one channel.

1) Click **Link Channel** to select a channel.

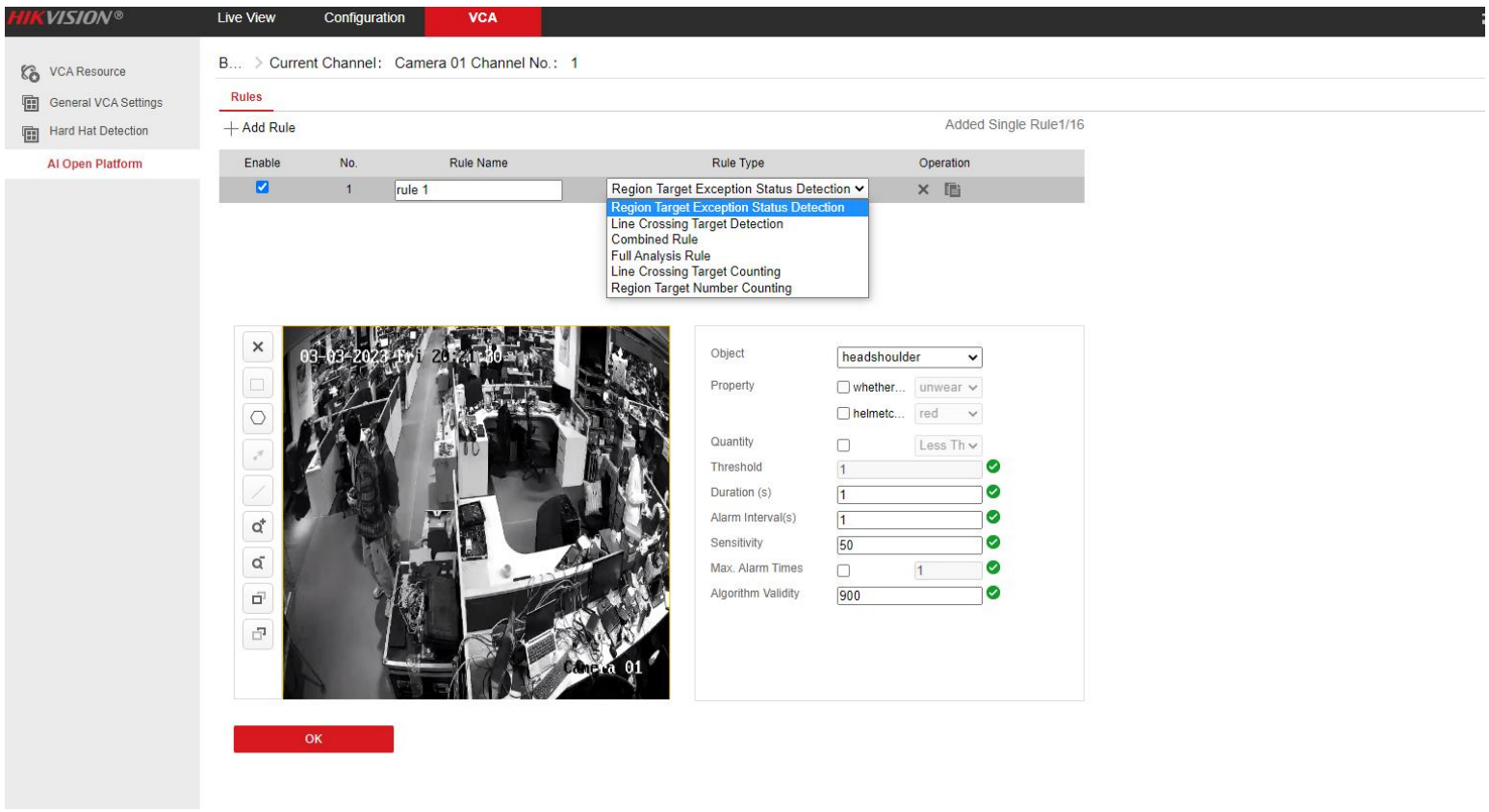


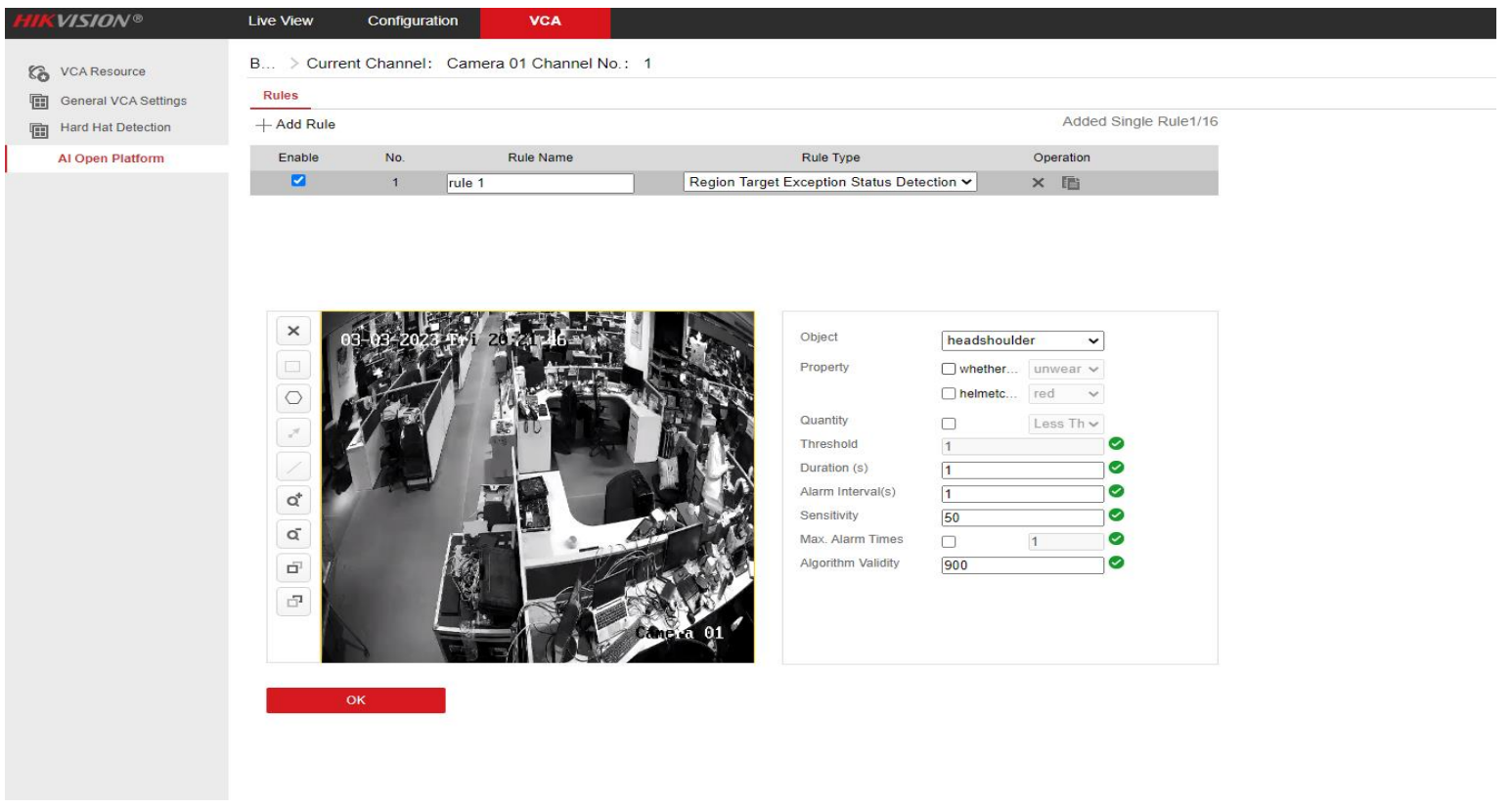
2) Click the icon in the picture shown below to set rules.



Step 7: Configure the rule of the channel

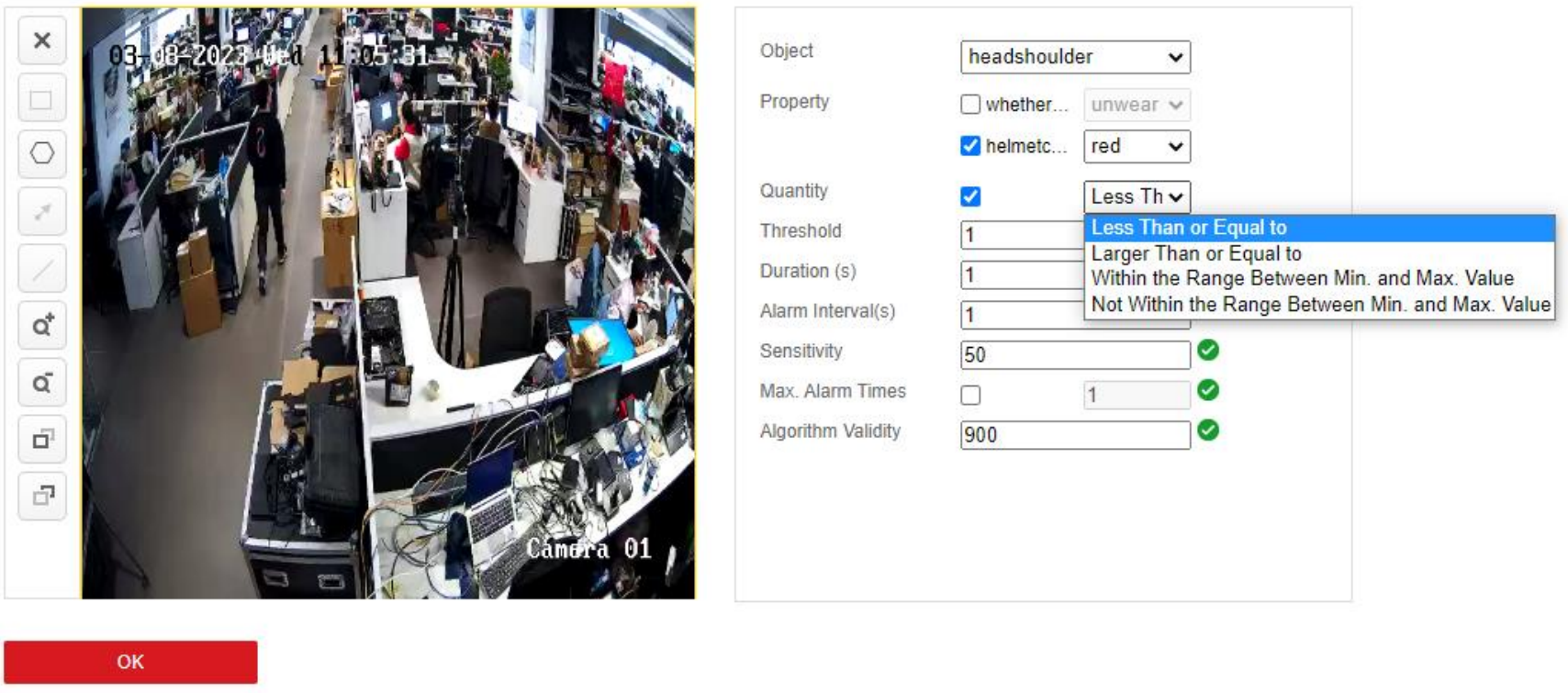
Click **Add Rule**. Enable one rule, edit the rule name. Select the Rule Type to **Region Target Exception Status Detection**.





Object: headshoulder

Property：There are two alarm types supported: Alarm for un-wear helmet and alarm for wear specific color helmet. Red, yellow, white, blue, orange and other are selectable for helmet color.



Quantity: Rules for determining the number of detected objects to generate alarms. There are 4 rules available: **Less Than or Equal to**, **Larger Than or Equal to**, **Within the Range Between Min. and Max**. **Value**, **Not Within the Range Between Min. and Max. Value.**

Duration: The time condition that for the target to trigger the alarm. Only when the target stays in the detection area for more than the set time, the alarm can be trigger. The maximum configurable time is 1800 seconds by default

Alarm Interval: Time interval of 2 alarms triggered by the same target.

Sensitivity: Identify the percentage of overlapping target head shoulder frames and detection frames. The higher the value, the easier the alarm is to trigger.

Max. Alarm Times: The maximum number of alarms for the same target detected by the algorithm. The maximum value is 100.

Algorithm Validity: The credibility of the target identified by the algorithm. If we set the value to 500, targets with a confidence levels below 500 will be filtered.

2.3 Three Alarm type Configuration

1) Un-wear Helmet Alar

Property: Tick whether to wear a helmet property， select the property to un-wear.

Note: For un-wear helmet alarm, do not tick helmet color property.

Quantity: No need to enable.Duration: 2s or above

Alarm Interval: Keep default value, or set based on actual requirements, the default value is 1s.

Sensitivity: Keep default value, or set based on actual requirements, the default value is 50.

Max. Alarm Times: 1 time.

Algorithm Validity: 500

Click the icon, use mouse to draw the area on the screen.

Click Save to finish the configuration.

2) Wear a specific color helmet alarm

Property: Tick whether to wear a helmet property， select the property to wear.

Tick helmet color property, select the color you need. There are six options available: red, yellow, white, blue, orange and other.

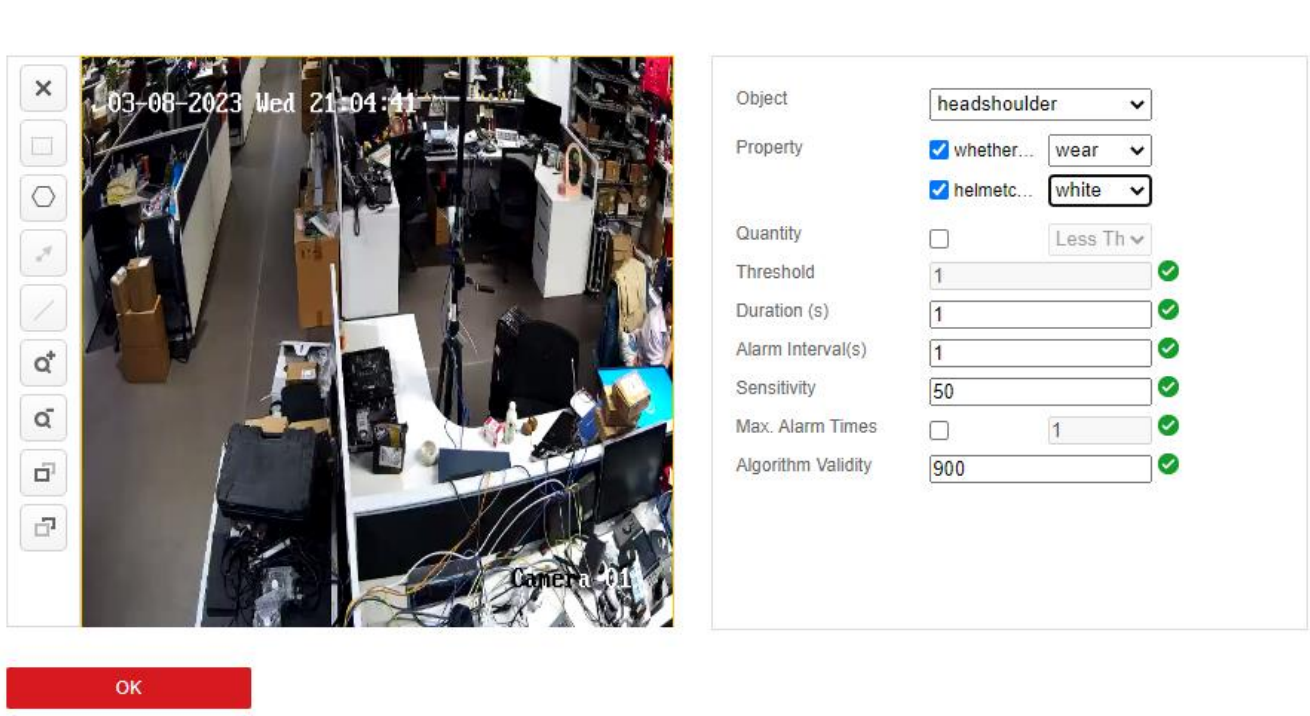
Quantity: No need to enable.

Duration: 2s or above

Alarm Interval: Keep default value, or set based on actual requirements, the default value is 1s.

Sensitivity: Keep default value, or set based on actual requirements, the default value is 50.

Max. Alarm Times: 1 time.



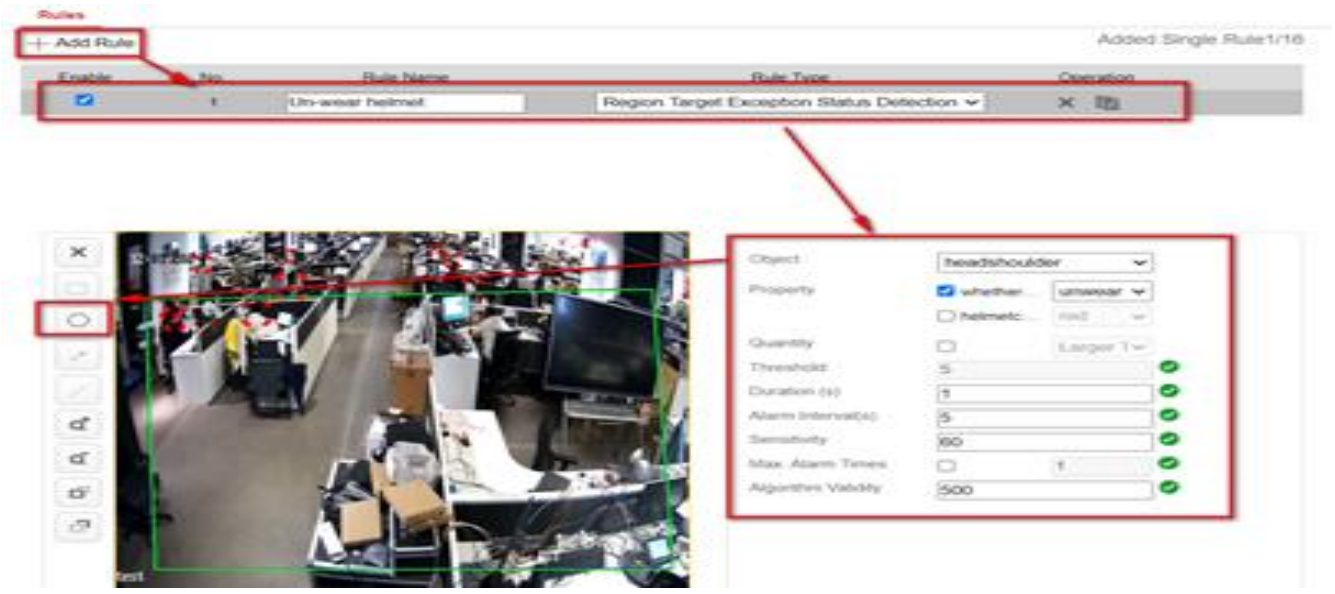
3) Un-wear a specific color Helmet Alarm

Note: At present, the algorithm only supports two alarm modes, which are alarm for un-wear helmet and alarm for wear specific color helmet. If you want to get alarm for Un-Wear a specific color helmet,

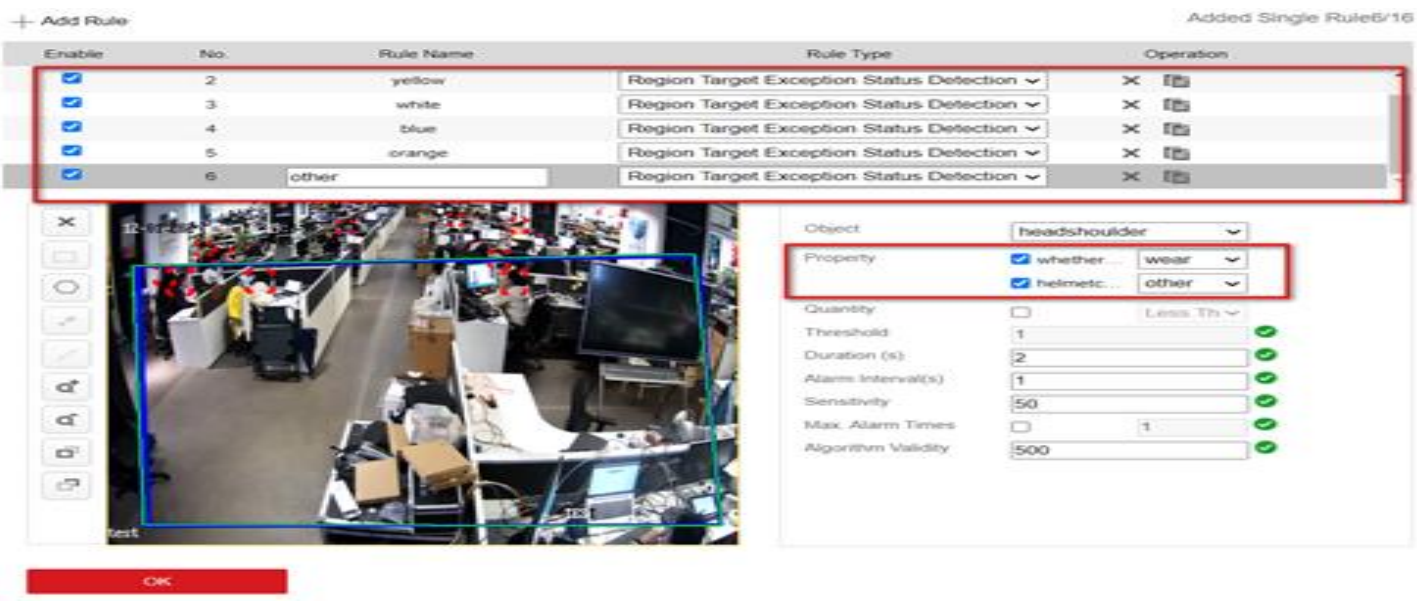
you need to add 6 rules to do this.

If you want to get alarm for un-wear Red helmet. Please operate according to below steps:

i) Click Add Rule, add rule 1， set un-wear helmet rule. For more configuration details, please refer to Un-wear helmet alarm above.



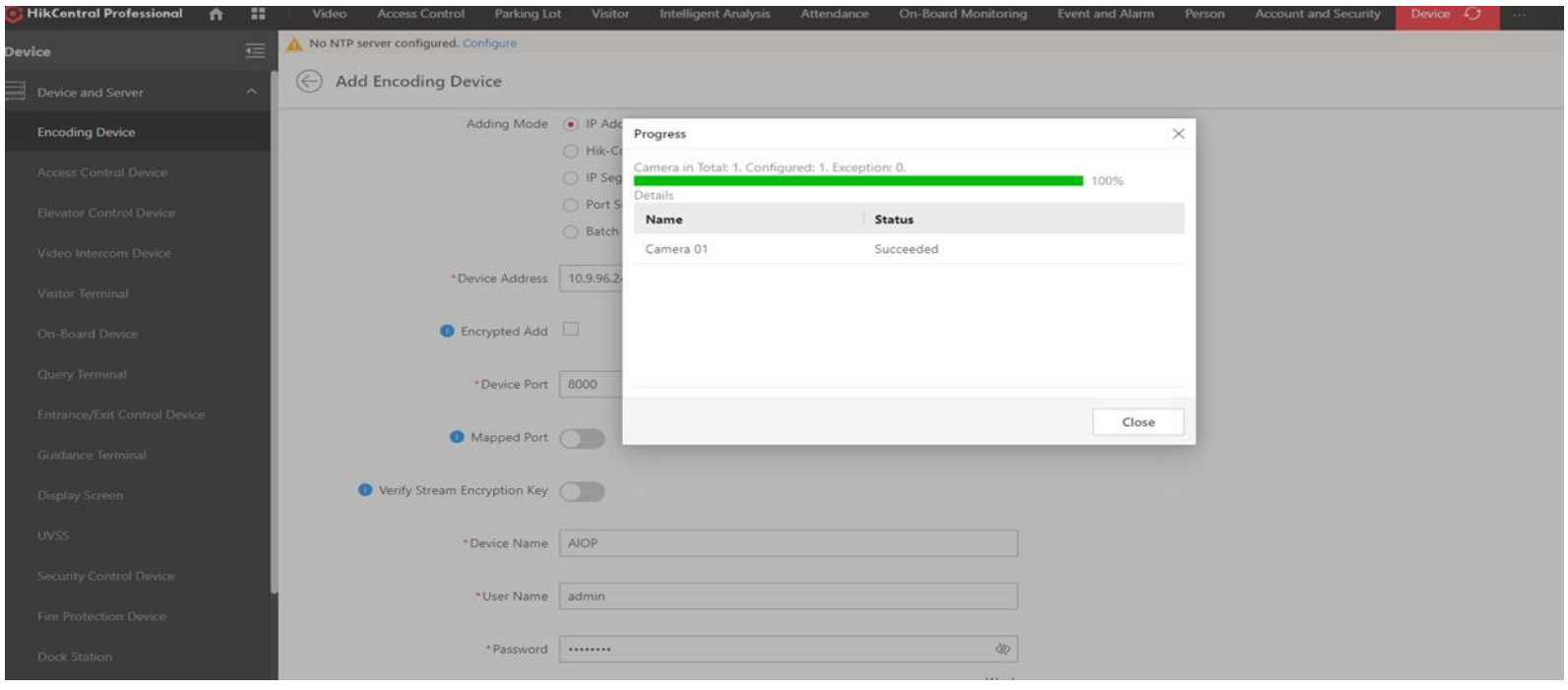
ii) Click Add Rule, add rule 2-6， set wear yellow, white, blue, orange and other helmet rule. For more configuration details please refer to Wear a specific color helmet alarm above.



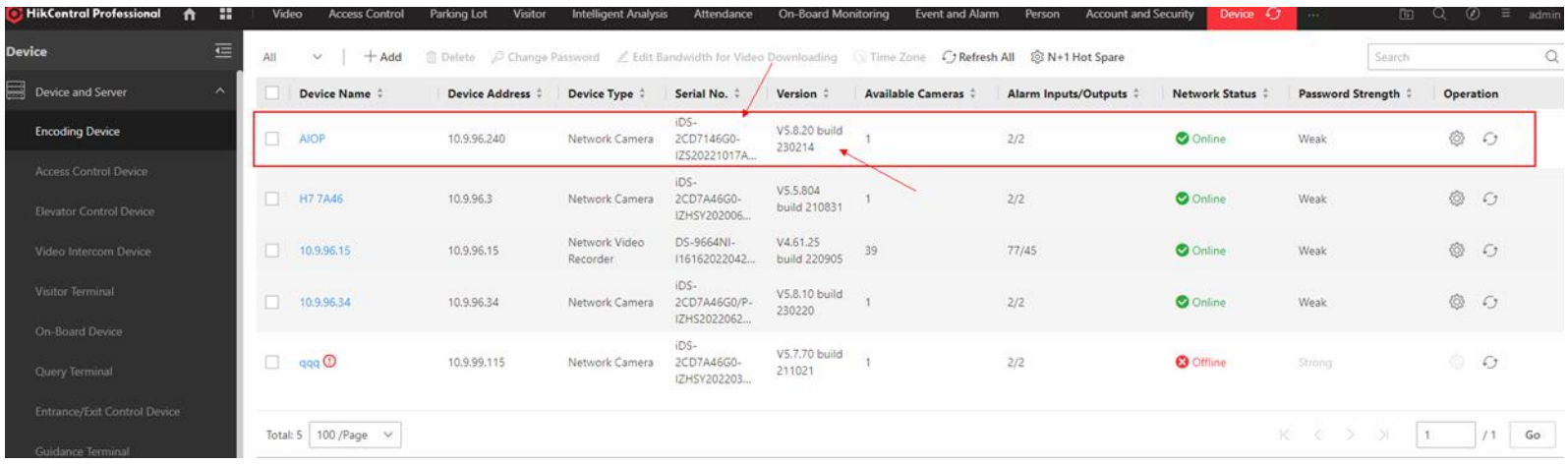
3. Check Alarm Content at Hikcentral Professional

3.1 Add Device

Enter HCP 2.4, Basic Management->Device->Encoding Device. Click the Add, the add menu pops up on the right, then fill in the parameters such as IP address, user name, and password to complete the addition.

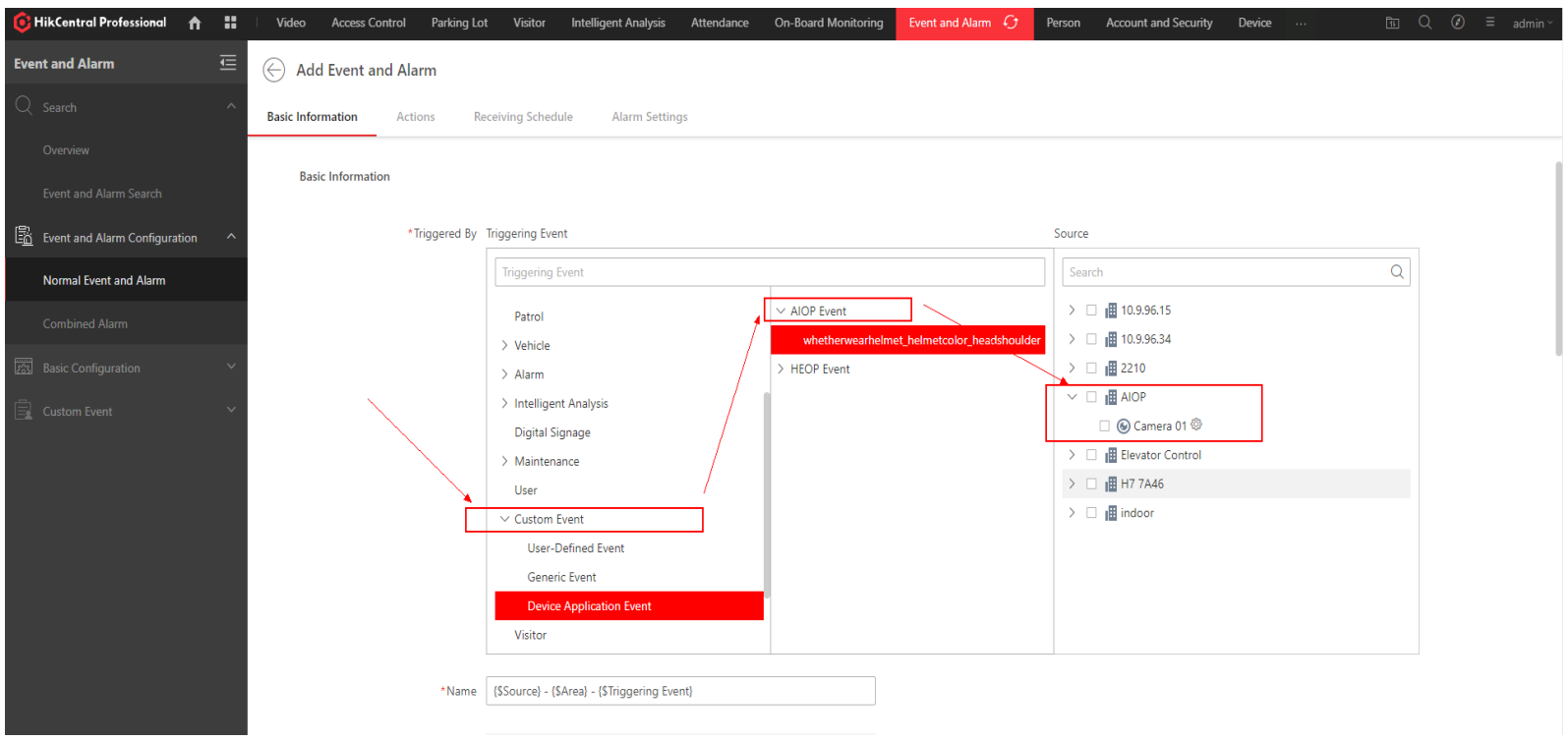


After filling in, the device network status shows online, it means the addition is successful. You also can check the model and firmware version of the camera, as shown in the figure below

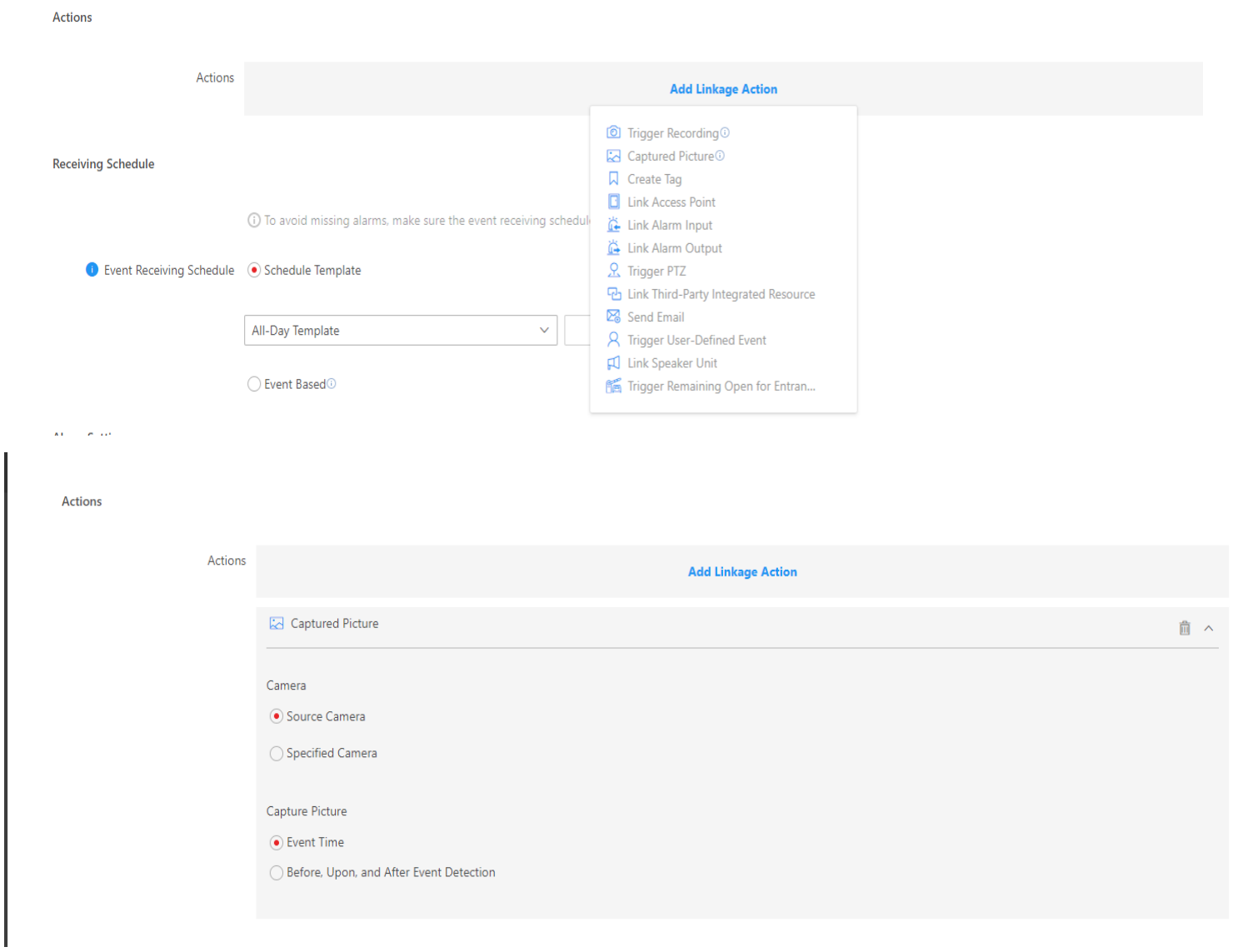


3.2 Alarm and Event Configuration

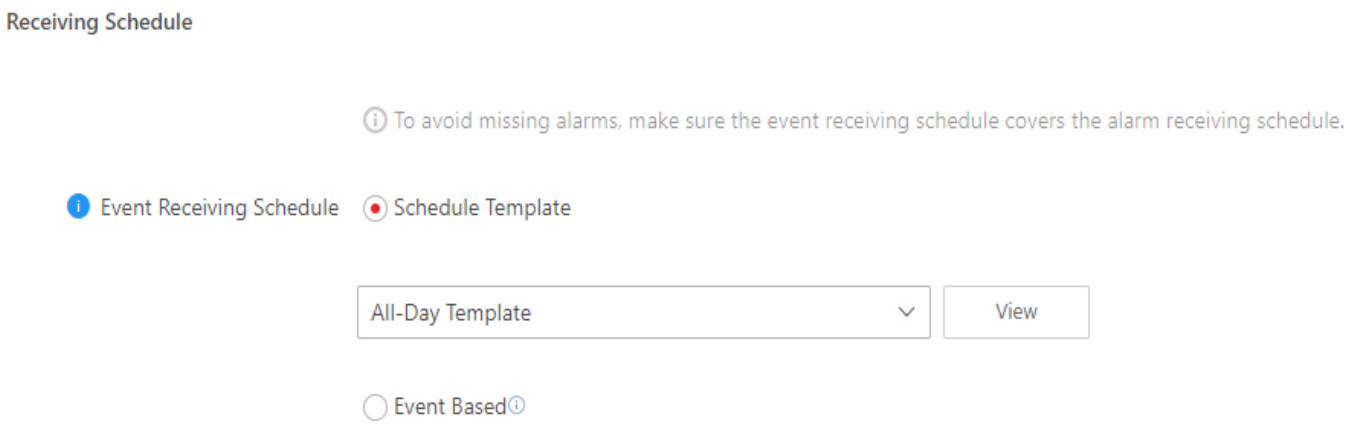
1) AIOP Camera Alarm Event configuration is different from the others. In this interface, select **Custom Event->Device Application Event**, then select **AIOP Event**, and finally select the added camera.



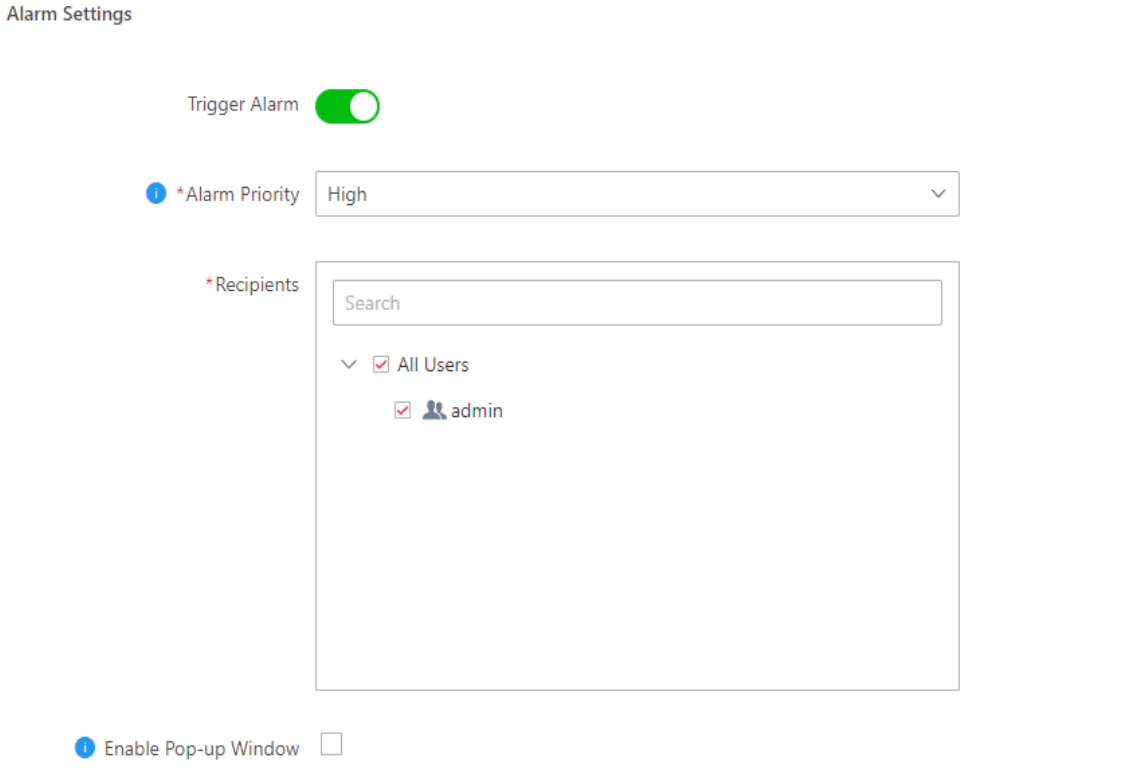
2) Configuring **Linkage Action**, Here commonly used linkage action: 1) **Captured Picture**; 2) **Trigger Recording**, as shown in below.

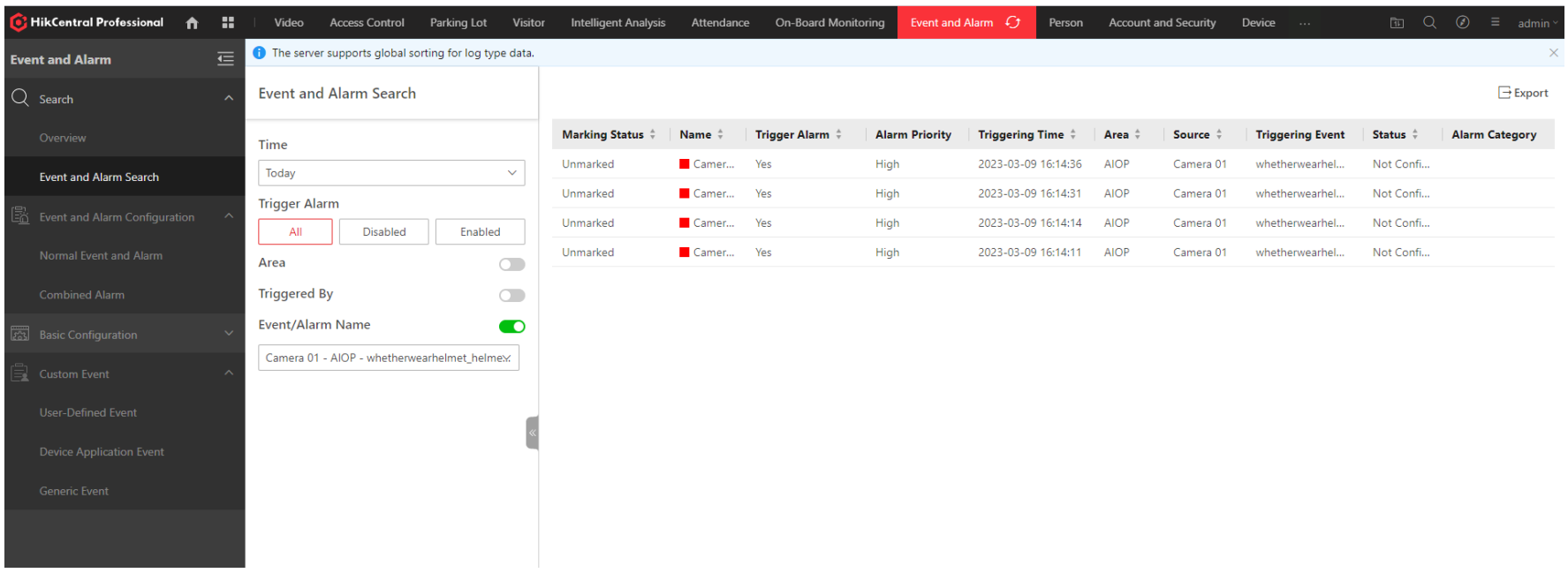


3) Edit Receiving Schedule



4) Enable **Trigger Alarm**, that is, trigger an alarm after an event occurs and send it to the alarm center.





5) Finally, you can view the alarm information triggered by the AIOP camera on the Web Client, including the trigger time of the alarm.

6) If you have trigger recording/capture picture configured, you can view the captured images or videos in the Alarm center of the Control Client